



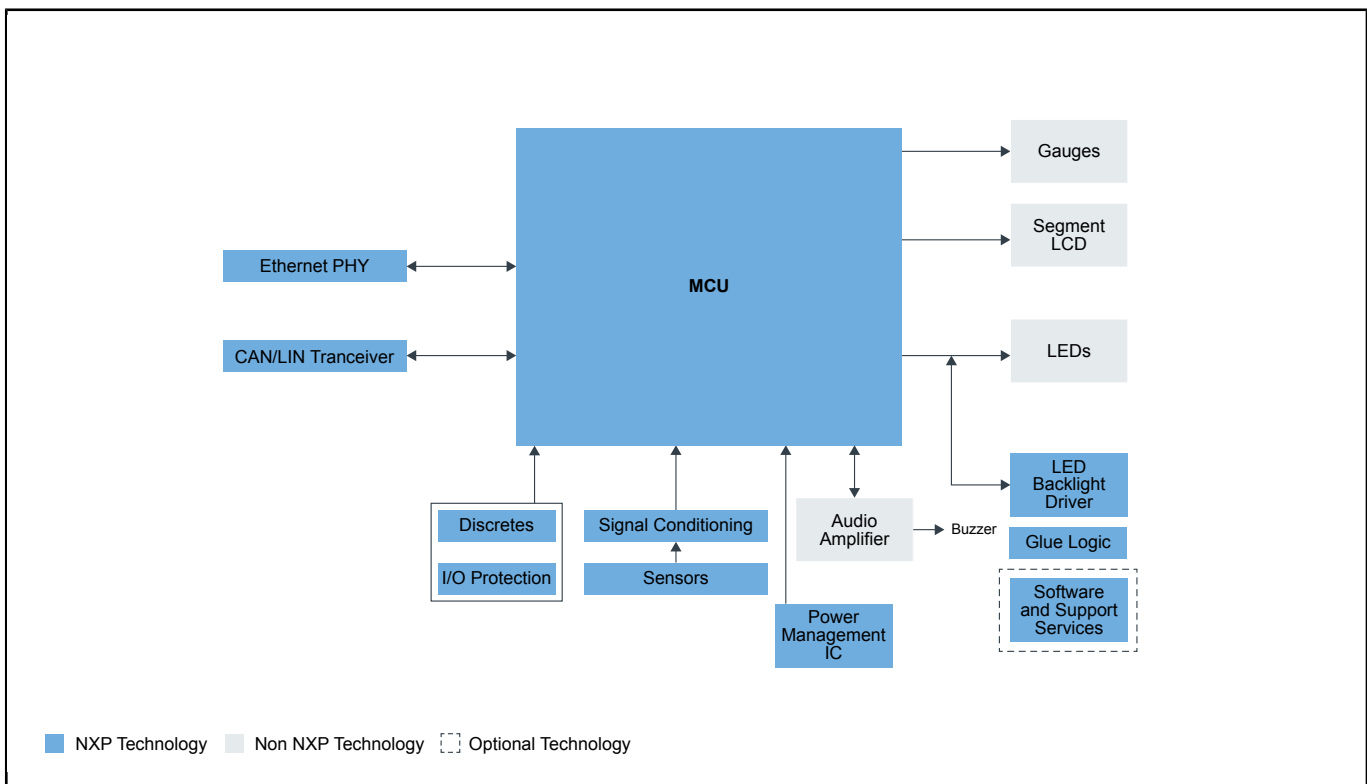
# Instrument Cluster

Last Updated: Jun 17, 2022

In the on-demand world, vehicles need to be able to offer a stylized yet simple way to convey complex information to drivers. Instrument clusters need to offer high-resolution colour displays with realistic visual renderings.

NXP's portfolio of instrument clusters covers entry level cost-effective solutions, through 2D and 3D hybrid displays. Each solution combines a full suite of hardware and software tools, complemented by our extensive ecosystem development tools.

## Entry instrument cluster Block Diagram

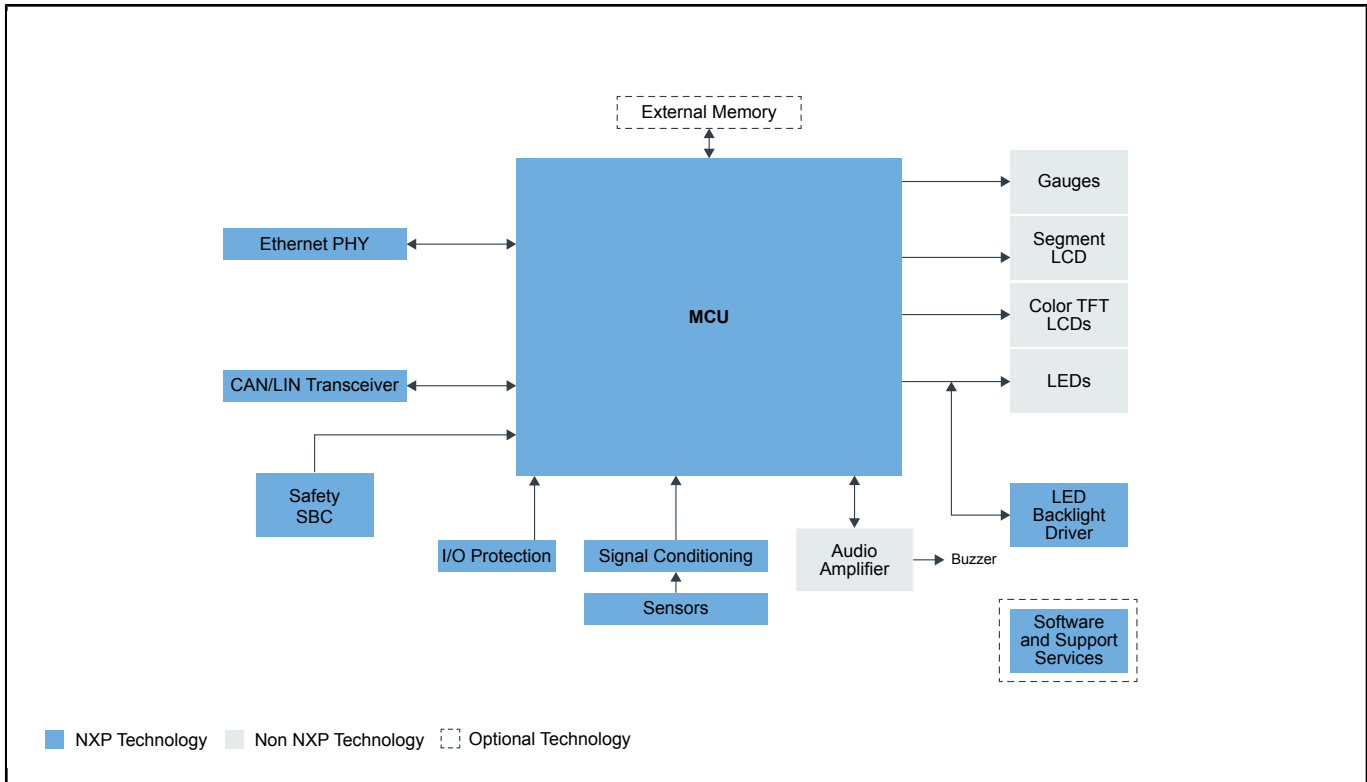


### Recommended Products for Entry instrument cluster

MCU	<ul style="list-style-type: none"> <li>• <a href="#">MAC57D5xx</a>: Ultra-Reliable Multi-Core Arm®-Based MCU for Clusters and Display Management</li> <li>• <a href="#">MPC564xS</a>: Ultra-Reliable MPC56xS MCU for Automotive &amp; Industrial Instrument Clusters</li> <li>• <a href="#">MPC560xS</a>: Ultra-Reliable MPC560xS MCU for Automotive &amp; Industrial Instrument Clusters</li> </ul>
Automotive Ethernet	<ul style="list-style-type: none"> <li>• <a href="#">TJA1101/TJA1101B</a>: Robust, Low Power 100BASE-T1 PHY Transceiver</li> </ul>
Signal Conditioning	<ul style="list-style-type: none"> <li>• <a href="#">CD1020</a>: Low-Cost 22-CH Multiple Switch Detect Interface</li> </ul>

CAN Transceiver	<ul style="list-style-type: none"> <li>• <a href="#">TJA144x</a>: Automotive CAN FD Transceiver Family</li> <li>• <a href="#">CAN Transceivers</a>: CAN Transceivers</li> <li>• <a href="#">Automotive LIN Solutions</a>: Automotive LIN Solutions</li> </ul>
Sensors	<ul style="list-style-type: none"> <li>• <a href="#">Sensors</a>: Sensors</li> </ul>
Power Management IC	<ul style="list-style-type: none"> <li>• <a href="#">Safety SBCs</a>: Safety System Basis Chips (Safety SBCs)</li> <li>• <a href="#">VR5500</a>: High Voltage PMIC with Multiple SMPS</li> <li>• <a href="#">FS5600</a>: Automotive Dual Buck Regulator and Controller with Voltage Monitors and Watchdog Timer</li> <li>• <a href="#">PF7100</a>: 7-Channel Power Management Integrated Circuit for High Performance Applications, Fit for ASIL B Safety Level</li> <li>• <a href="#">FS4500</a>: Grade 1 and Grade 0 Safety Power System Basis Chip with CAN Flexible Data Transceiver</li> <li>• <a href="#">FS6500</a>: Grade 1 and Grade 0 Safety Power System Basis Chip with CAN Flexible Data Transceiver</li> <li>• <a href="#">VR5510</a>: Multi-Channel (9) PMIC for S32G Processor – 8 High Power, 1 Low Power, Fit for ASIL D Safety Level</li> <li>• <a href="#">MMPF0100</a>: 14-Channel Configurable PMIC</li> <li>• <a href="#">PF5020</a>: Multi-Channel (5) PMIC for Automotive Applications – 4 High Power and 1 Low Power, Fit for ASIL B Safety Level</li> <li>• <a href="#">PF5024</a>: Multi-Channel (4) PMIC for Automotive Applications – 4 High Power, Fit for ASIL B Safety Level</li> </ul>
LED Backlight Driver	<ul style="list-style-type: none"> <li>• <a href="#">MC33996</a>: 16-Output Switch with SPI Control</li> </ul>

## 2D Instrument cluster Block Diagram

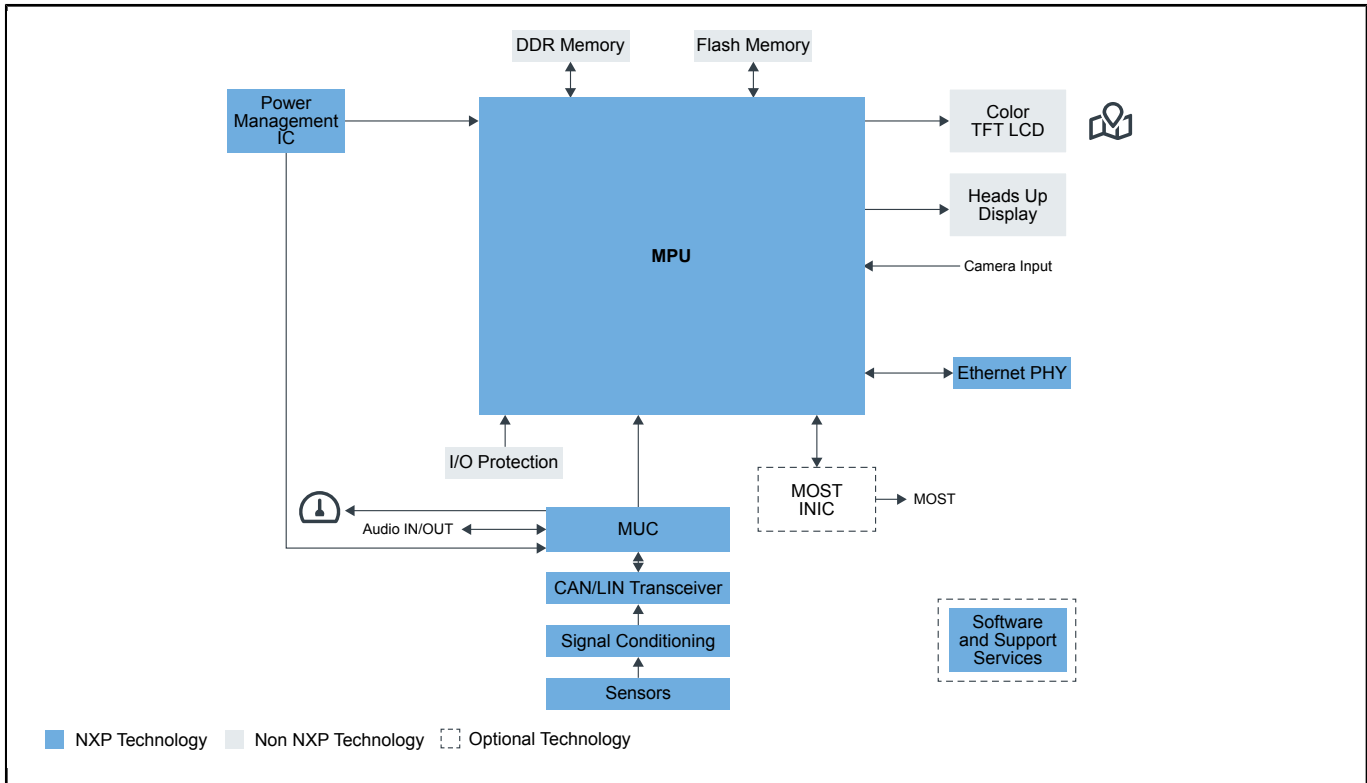


### Recommended Products for 2D Instrument cluster

MCU	<ul style="list-style-type: none"> <li>• <a href="#">MAC57D5xx</a>: Ultra-Reliable Multi-Core Arm®-Based MCU for Clusters and Display Management</li> <li>• <a href="#">MPC564xS</a>: Ultra-Reliable MPC56xS MCU for Automotive &amp; Industrial Instrument Clusters</li> <li>• <a href="#">MPC560xS</a>: Ultra-Reliable MPC560xS MCU for Automotive &amp; Industrial Instrument Clusters</li> </ul>
Automotive Ethernet	<ul style="list-style-type: none"> <li>• <a href="#">TJA1101/TJA1101B</a>: Robust, Low Power 100BASE-T1 PHY Transceiver</li> </ul>

Signal Conditioning	<ul style="list-style-type: none"> <li>• <a href="#">CD1020</a>: Low-Cost 22-CH Multiple Switch Detect Interface</li> </ul>
Safety SBC	<ul style="list-style-type: none"> <li>• <a href="#">VR5500</a>: High Voltage PMIC with Multiple SMPS</li> <li>• <a href="#">FS5600</a>: Automotive Dual Buck Regulator and Controller with Voltage Monitors and Watchdog Timer</li> <li>• <a href="#">PF7100</a>: 7-Channel Power Management Integrated Circuit for High Performance Applications, Fit for ASIL B Safety Level</li> <li>• <a href="#">FS4500</a>: Grade 1 and Grade 0 Safety Power System Basis Chip with CAN Flexible Data Transceiver</li> <li>• <a href="#">FS6500</a>: Grade 1 and Grade 0 Safety Power System Basis Chip with CAN Flexible Data Transceiver</li> <li>• <a href="#">VR5510</a>: Multi-Channel (9) PMIC for S32G Processor – 8 High Power, 1 Low Power, Fit for ASIL D Safety Level</li> <li>• <a href="#">MMPF0100</a>: 14-Channel Configurable PMIC</li> <li>• <a href="#">PF5020</a>: Multi-Channel (5) PMIC for Automotive Applications – 4 High Power and 1 Low Power, Fit for ASIL B Safety Level</li> <li>• <a href="#">PF5024</a>: Multi-Channel (4) PMIC for Automotive Applications – 4 High Power, Fit for ASIL B Safety Level</li> </ul>
Sensors	<ul style="list-style-type: none"> <li>• <a href="#">Sensors</a>: Sensors</li> </ul>
CAN Transceiver	<ul style="list-style-type: none"> <li>• <a href="#">TJA144x</a>: Automotive CAN FD Transceiver Family</li> <li>• <a href="#">Automotive LIN Solutions</a>: Automotive LIN Solutions</li> <li>• <a href="#">CAN Transceivers</a>: CAN Transceivers</li> </ul>
LED Backlight Driver	<ul style="list-style-type: none"> <li>• <a href="#">MC33996</a>: 16-Output Switch with SPI Control</li> </ul>

### 3D Instrument cluster Block Diagram

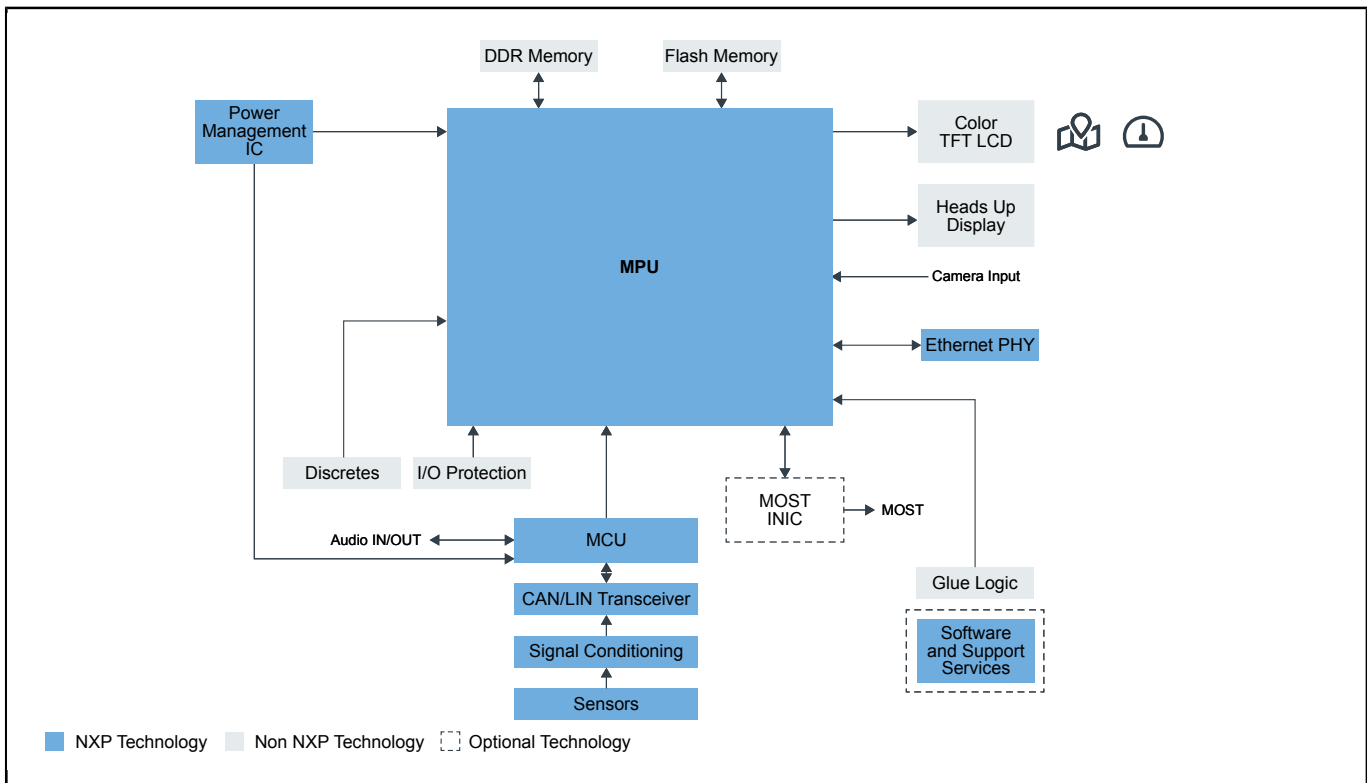


#### Recommended Products for 3D Instrument cluster

MPU	<ul style="list-style-type: none"> <li>• <a href="#">i.MX6D</a>: i.MX 6Dual Processors - Dual-Core, 3D Graphics, HD Video, Multimedia, Arm® Cortex®-A9 Core</li> <li>• <a href="#">i.MX 8 Family</a> – Arm® Cortex®-A53, Cortex-A72, Virtualization, Vision, 3D Graphics, 4K Video</li> <li>• <a href="#">i.MX 8X Family</a> – Arm® Cortex®-A35, 3D Graphics, 4K Video, DSP, Error Correcting Code on DDR</li> </ul>
-----	--

MCU	<ul style="list-style-type: none"> <li>• <a href="#">MAC57D5xx</a>: Ultra-Reliable Multi-Core Arm®-Based MCU for Clusters and Display Management</li> <li>• <a href="#">MPC564xS</a>: Ultra-Reliable MPC56xS MCU for Automotive &amp; Industrial Instrument Clusters</li> <li>• <a href="#">MPC560xS</a>: Ultra-Reliable MPC560xS MCU for Automotive &amp; Industrial Instrument Clusters</li> </ul>
Automotive Ethernet	<ul style="list-style-type: none"> <li>• <a href="#">TJA1101/TJA1101B</a>: Robust, Low Power 100BASE-T1 PHY Transceiver</li> </ul>
CAN/LIN Transceiver	<ul style="list-style-type: none"> <li>• <a href="#">TJA144x</a>: Automotive CAN FD Transceiver Family</li> <li>• <a href="#">TJA1043</a>: High-Speed CAN Transceiver with Standby and Sleep Mode</li> <li>• <a href="#">Automotive LIN Solutions</a>: Automotive LIN Solutions</li> </ul>
Power Management IC	<ul style="list-style-type: none"> <li>• <a href="#">VR5500</a>: High Voltage PMIC with Multiple SMPS</li> <li>• <a href="#">PF8101-PF8201</a>: 9-Channel Power Management Integrated Circuit (PMIC) for High-Performance Processing Applications</li> <li>• <a href="#">PF7100</a>: 7-Channel Power Management Integrated Circuit for High Performance Applications, Fit for ASIL B Safety Level</li> <li>• <a href="#">FS5600</a>: Automotive Dual Buck Regulator and Controller with Voltage Monitors and Watchdog Timer</li> <li>• <a href="#">FS4500</a>: Grade 1 and Grade 0 Safety Power System Basis Chip with CAN Flexible Data Transceiver</li> <li>• <a href="#">FS6500</a>: Grade 1 and Grade 0 Safety Power System Basis Chip with CAN Flexible Data Transceiver</li> <li>• <a href="#">VR5510</a>: Multi-Channel (9) PMIC for S32G Processor – 8 High Power, 1 Low Power, Fit for ASIL D Safety Level</li> <li>• <a href="#">MMPF0100</a>: 14-Channel Configurable PMIC</li> <li>• <a href="#">PF5020</a>: Multi-Channel (5) PMIC for Automotive Applications – 4 High Power and 1 Low Power, Fit for ASIL B Safety Level</li> <li>• <a href="#">PF5024</a>: Multi-Channel (4) PMIC for Automotive Applications – 4 High Power, Fit for ASIL B Safety Level</li> </ul>
Sensors	<ul style="list-style-type: none"> <li>• <a href="#">Sensors</a>: Sensors</li> </ul>
Signal Conditioning	<ul style="list-style-type: none"> <li>• <a href="#">MC33972</a>: MSDI with Suppressed Wakeup</li> </ul>
Software	<ul style="list-style-type: none"> <li>• <a href="#">i.MX Software</a>: i.MX Software and Development Tools</li> <li>• <a href="#">Professional Support for Processors and Microcontrollers</a></li> <li>• <a href="#">NXP Engineering Services</a>: NXP Engineering Services</li> </ul>

## Reconfigurable 3D display Block Diagram



Recommended Products for Reconfigurable 3D display	
MPU	<ul style="list-style-type: none"> <li>• <a href="#">i.MX6D</a>: i.MX 6Dual Processors - Dual-Core, 3D Graphics, HD Video, Multimedia, Arm® Cortex®-A9 Core</li> <li>• <a href="#">i.MX 8 Family</a> – Arm® Cortex®-A53, Cortex-A72, Virtualization, Vision, 3D Graphics, 4K Video</li> <li>• <a href="#">i.MX 8X Family</a> – Arm® Cortex®-A35, 3D Graphics, 4K Video, DSP, Error Correcting Code on DDR</li> </ul>
Automotive Ethernet	<ul style="list-style-type: none"> <li>• <a href="#">TJA1101/TJA1101B</a>: Robust, Low Power 100BASE-T1 PHY Transceiver</li> </ul>
MCU	<ul style="list-style-type: none"> <li>• <a href="#">MAC57D5xx</a>: Ultra-Reliable Multi-Core Arm®-Based MCU for Clusters and Display Management</li> <li>• <a href="#">MPC564xS</a>: Ultra-Reliable MPC56xS MCU for Automotive &amp; Industrial Instrument Clusters</li> <li>• <a href="#">MPC560xS</a>: Ultra-Reliable MPC560xS MCU for Automotive &amp; Industrial Instrument Clusters</li> </ul>
Signal Conditioning	<ul style="list-style-type: none"> <li>• <a href="#">CD1020</a>: Low-Cost 22-CH Multiple Switch Detect Interface</li> </ul>
CAN Transceiver	<ul style="list-style-type: none"> <li>• <a href="#">TJA144x</a>: Automotive CAN FD Transceiver Family</li> <li>• <a href="#">TJA1043</a>: High-Speed CAN Transceiver with Standby and Sleep Mode</li> <li>• <a href="#">Automotive LIN Solutions</a>: Automotive LIN Solutions</li> </ul>
Power Management IC	<ul style="list-style-type: none"> <li>• <a href="#">VR5500</a>: High Voltage PMIC with Multiple SMPS</li> <li>• <a href="#">PF8101-PF8201</a>: 9-Channel Power Management Integrated Circuit (PMIC) for High-Performance Processing Applications</li> <li>• <a href="#">PF7100</a>: 7-Channel Power Management Integrated Circuit for High Performance Applications, Fit for ASIL B Safety Level</li> <li>• <a href="#">FS5600</a>: Automotive Dual Buck Regulator and Controller with Voltage Monitors and Watchdog Timer</li> <li>• <a href="#">FS4500</a>: Grade 1 and Grade 0 Safety Power System Basis Chip with CAN Flexible Data Transceiver</li> <li>• <a href="#">FS6500</a>: Grade 1 and Grade 0 Safety Power System Basis Chip with CAN Flexible Data Transceiver</li> <li>• <a href="#">VR5510</a>: Multi-Channel (9) PMIC for S32G Processor – 8 High Power, 1 Low Power, Fit for ASIL D Safety Level</li> <li>• <a href="#">MMPF0100</a>: 14-Channel Configurable PMIC</li> <li>• <a href="#">PF5020</a>: Multi-Channel (5) PMIC for Automotive Applications – 4 High Power and 1 Low Power, Fit for ASIL B Safety Level</li> <li>• <a href="#">PF5024</a>: Multi-Channel (4) PMIC for Automotive Applications – 4 High Power, Fit for ASIL B Safety Level</li> </ul>
Software	<ul style="list-style-type: none"> <li>• <a href="#">i.MX Software</a>: i.MX Software and Development Tools</li> <li>• <a href="#">Professional Support for MCUs</a>: Professional Support for MCUs</li> <li>• <a href="#">NXP Engineering Services</a>: NXP Engineering Services</li> </ul>
Sensors	<ul style="list-style-type: none"> <li>• <a href="#">Sensors</a>: Sensors</li> </ul>

View our complete solution for [Instrument Cluster](#).

**Note:** The information on this document is subject to change without notice.

[www.nxp.com](http://www.nxp.com)

NXP and the NXP logo are trademarks of NXP B.V. All other product or service names are the property of their respective owners. The related technology may be protected by any or all of patents, copyrights, designs and trade secrets. All rights reserved. © 2022 NXP B.V.